CLAIMS:

(for national/regional phases)

1. A process for the preparation and identification of hydrolase mutants having improved properties with respect to stereo- or regioselectivity, characterized in that

a) a starting hydrolase gene is mutagenized by a modified polymerase chain reaction (PCR), wherein the mutation rate and total number of mutations in the amplified DNA is adjusted by adjusting the concentrations of Mg^{2+}, Mn^{2+} and of the deoxynucleotides and by adjusting the number of cycles;

b) optionally one or more hydrolase genes mutated according to step a), or mixtures of one or more starting hydrolase genes and one or more hydrolase genes mutated according to step a) are mutagenized by enzymatically fragmenting said genes, followed by enzymatic reassembly of the fragments produced to give complete recombinant hydrolase genes;

c) the mutated hydrolase genes obtained according to step a) or b) are transformed into a host organism; and

d) hydrolase mutants having improved properties, expressed by transformants obtained in step c), are identified by a test method.

2. The process according to claim 1, wherein an average mutation rate of 1-2 base substitutions, per one hydrolase gene to be mutagenized, is adjusted in the PCR in step a) by adjusting the concentrations of Mg^{2+}, Mn^{2+} and of the deoxynucleotides.

3. The process according to claim 1, wherein a hydrolase gene mutagenized in a PCR previously performed according to claim 1 is used as the starting hydrolase gene in step a).